Design Basics

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A knowledge of design basics is key to the successful planning and implementation of any interior design project. The **elements** and **principles** of design represent general, universal ideas that refer to every aspect of design. Once designers understand how people perceive and react to their environments (as discussed in Chapter 2), they can use the elements and principles of design to form a whole composition. This chapter discusses the elements and principles individually in order to fully understand each one and its respective potential in a design.

Elements of Design

The **elements** of design provide a framework for problem solving in the design process. Form, texture and color are the components brought together to create an environment.

Form encompasses the spatial definition of a thing, its extent in one, two, or three dimensions. In mathematics, form is spoken of in terms of point, line, and plane. In design, we speak of line, shape, and volume.

Fig. 1 Diagonal lines bring dynamics to a static space.[1]

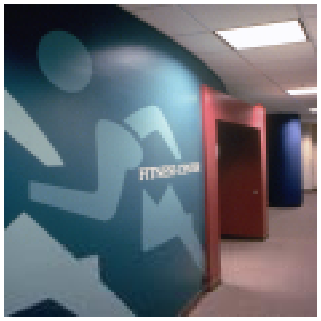

Fig. 2 A composition of irregular shapes becomes a landmark.[2]

• **Line**, by definition, is the extension of a point. It can be straight or curved. Line can express various feelings and emotions—a smooth, delicate line seems serene and soothing while a heavy, frantic line can signify anger or energy. One of the most expressive qualities of line is its direction. Vertical lines evoke aspiration, stability and ascendancy. Horizontal lines express feelings of rest and relaxation. Diagonal lines suggest movement and activity (Fig. 1). Large upward curves suggest gentle, relaxed movement. Downward curves seem serious and sad. Small curves denote playfulness and humor.

• **Shape** refers to two-dimensional forms created by intersecting lines. Shape can be simple geometric forms such as a square, triangle or circle, or they can be irregular and amorphous, conforming to no particular definition. Simple geometric forms tend to evoke

[1] Dependent Youth Activities Center. Ft. Meade.

[2] Fitness Center. John J. Sparkman Center for Missile Excellence, Redstone Arsenal, Alabama.

stability and completeness while irregular shapes may appear more dynamic and interesting (Fig. 2). Either, used in excess, may create boredom or unease.

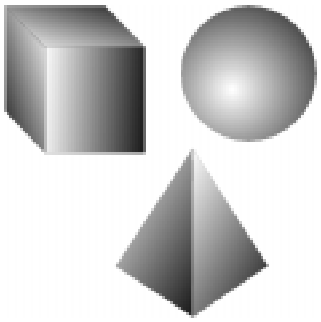

Fig. 3 Volume extruded, rotated and mapped

• **Volume** refers to the extension of shape into three dimensions (Fig. 3). In an interior environment volume is typified by objects, such as furniture, and by residual space—that defined by structure and captured by columns, doors, etc. Space defined by walls is the most common volume in interior design. As with shape, volumes can be either geometric in nature or free-flowing and irregular. Totally geometric spaces can seem formal or restrictive while free-flowing spaces can feel open or confusing.

• **Space** is the infinite extension of a three-dimensional field. Not only is space the realm where shape and volume exist, but it also determines their aesthetic qualities. Sculpture, pottery, jewelry, and architecture all use space in their design. Designs in space require interaction when viewing or experiencing, whether walking around a sculpture, wearing a piece of jewelry, or living in a piece of architecture.

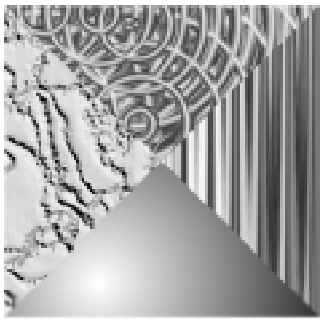

Fig. 4 Texture tactile and visual

Texture is essentially a tactile characteristic, but may be perceived by either touch or sight (Fig. 4). Texture may be rough, smooth, bumpy, fuzzy, grooved, or prickly. Tactile texture is felt, while visual texture is seen, imparting impressions of textures. Visual texture is often referred to as pattern. A pine cone has a texture one can feel as well a pattern one can see. Texture can be used to create different feelings in an environment—smooth textures seem cold and impersonal while rough textures seem warm and natural.[3]

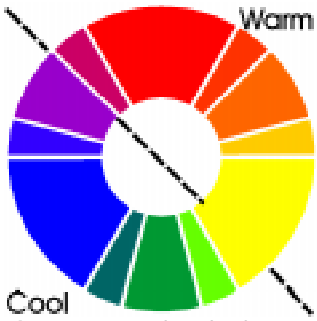

Fig. 5 Warm and cool colors on the color wheel

Color encompasses both art and science. Chapter 3 discussed the science of color, here it is discussed as an element of design. Because color evokes such strong emotional responses, it is one of the most important elements of design.

• Hues on the color wheel can be divided into two categories: warm and cool (Fig. 5). Red, orange, and yellow constitute the warm hues which tend to stimulate and excite. Warm colors can elevate the apparent

[3]Marjorie E. Bevlin, *Design Through Discovery* (New York: Holt Rinehart and Winston, 1989) pp. 99-100.

temperature of a room and make interiors seem cozy and friendly. The cool colors—blue, green and violet—tend to soothe and relax. They elicit feelings of formality and reserve and can seem refreshing on a hot day.[4]

• **Color harmonies** are pleasing combinations of color. In theory any hue can be made to harmonize with any other hue by manipulating its value and chroma. Color harmonies typically fall into two categories: related or contrasting. **Related color schemes** are composed of one or several neighboring hues and promote harmony and unity. **Contrasting color schemes** are based on hues

Color combinations related...

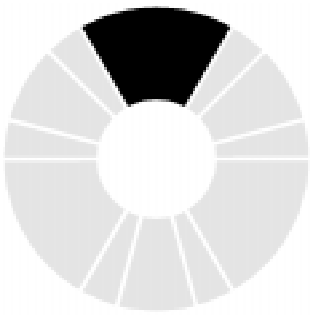

Fig. 6 Monochromatic

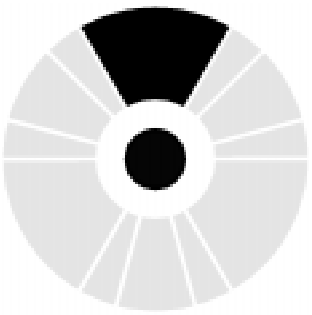

Fig. 7 Monochromatic plus black

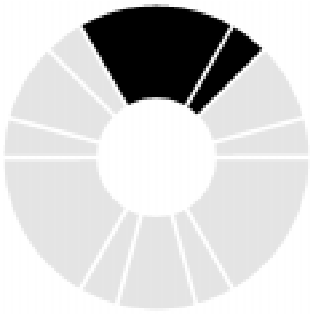

Fig. 8 Analogous

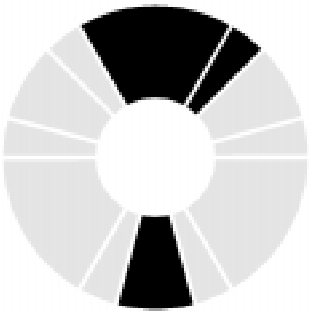

Fig. 9 Analogous plus complementary accent

located far apart on the color wheel. These offer variety and balance.

Some color harmonies form the basis of **technical color schemes**, which identify particular combinations of pure hues. These serve as guides in developing a color palette for an interior environment. The schemes do not imply that the pure hues of color systems are the only hues that can create a scheme, they simply provide a place to start. The technical color schemes include

[4] Bevlin, p. 133.

monochromatic, monochromatic plus black, analogous, analogous plus a complementary accent, complementary,

...and contrasting

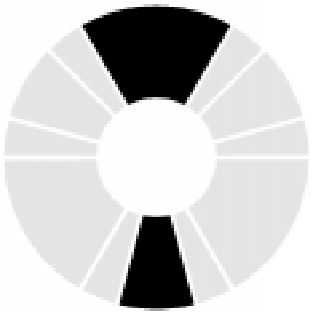

Fig. 10 Complementary

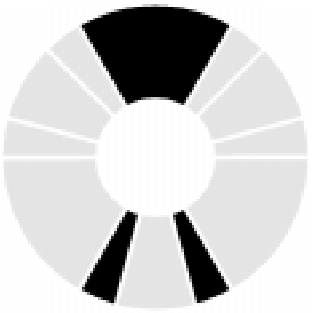

Fig. 11 Split complementary

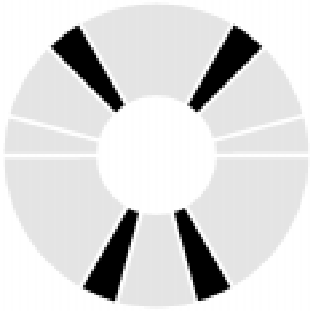

Fig. 12 Double split complementary

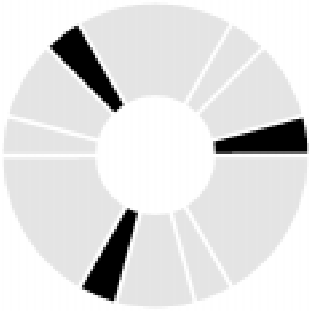

Fig. 13 Triad

near or split complementary, double split complementary, and triads (Figs. 6-13).

Principles of Design

The **principles** of design are used to organize individual elements into a workable, aesthetic design concept. They include balance, rhythm, emphasis, harmony, proportion, and scale.

• **Balance** results from the interaction of inter-playing forces, attractions, and weights. Balance strives for a state of equilibrium in order to create a sense of tranquility. Balance can be achieved in varying ways (Fig. 14). **Symmetrical balance** deals with designs whose halves are mirror images of one another. This type of balance usually connotes feelings of formality, security, and stability due to its predictability. **Asymmetrical balance** deals with designs whose visual weights are equivalent but not identical. This balance is informal and active in nature, it suggests movement and

spontaneity. Asymmetrical balance tends to be more interesting than symmetrical balance and more difficult to achieve. **Radial balance** occurs when elements repeat around a central point (Fig. 15). The chief characteristic is a circular movement away from, toward, or around a focal point. Radial balance can sometimes be symmetrical if, when divided along a line piercing the center, the halves are identical mirror images.

• **Rhythm** provides an underlying unity and evolving variety. Continuity, recurrence, or organized movement constitute rhythm. Repetition and progression are two

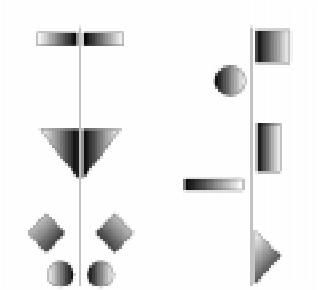

Fig. 14 Symmetrical (left) and asymmetrical (right) balance

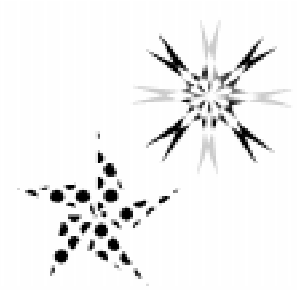

Fig. 15 Radial (left) and radial symmetrical (right) balance

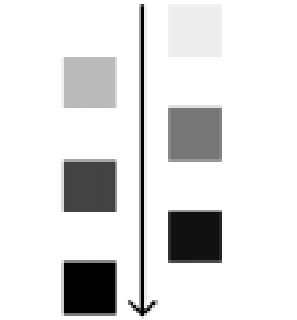

Fig. 16 Progressive rhythm

primary ways of developing rhythm. **Repetition** of an identical form, shape, line or color gives a unifying characteristic to an environment. In **progression**, ordered systematic change develops movement by modifying one or more of the spatial elements to create a sequence or transition (Fig. 16). Because it suggests motion, progression can be more dynamic than simple repetition.

• **Emphasis** deals in terms of dominance and subordination. Properly used, it calls attention to the more important elements of a space (Fig. 17). It helps to define focal points, visual rest areas and progressive degrees of interest in between. Emphasis can be achieved through position, light, shape, or contrast.

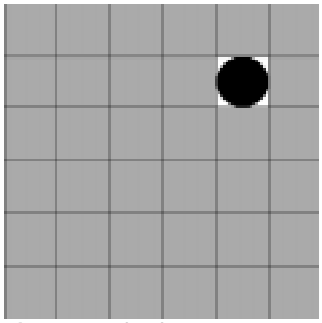

Fig. 17 Emphasis

• **Harmony** is marked by a consistent, pleasing interaction of spatial elements. In achieving harmony, the elements and principles working in a space must relate to each other and to the overall design concept. **Unity** describes elements of a whole which are in accord. Unity makes for ease of identification, but proves dull when unrelieved. **Variety** modifies parts of

an environment by means other than progression. Without some unifying factor such as color, shape, pattern, or theme, variety can be discordant.

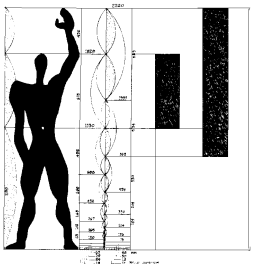

Fig. 18 Proportion

• **Proportion** is the desired relationship of parts to the whole (Fig. 18). Related to size, it deals with magnitude, quantity, or degree. The relationship between parts is such that if one part varies, another varies in a ratio to the first. While a well-proportioned room seems just right, and a poorly-proportioned room seems too long or too wide; no indisputable system for determining proper proportions exists.

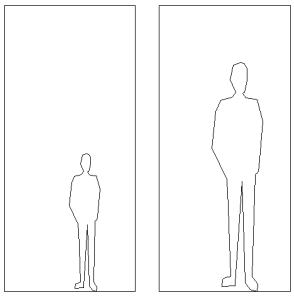

Fig. 19 Scale

• **Scale** conveys the relative size of an object that has been measured by a dimension of comparison, such as the human body (Fig. 19). Oftentimes, scale is used to demonstrate the relationship between man and his environment. Large scale usually denotes power, formality, security, and elegance by feeding the human ego. Smaller scale does just the opposite and can denote child-like wistfulness.

The elements of design are the building blocks used in creating an interior. The principles of design are the methods in which those building blocks are arranged. All of the elements and principles must work together in order to create a pleasing, aesthetic environment. The designer must have an understanding of the essence of each, as well as knowledge of how each works in an interior environment. This knowledge allows the designer to utilize his or her imagination in creating unique environments that satisfy various needs and desires.

Workplace Design with Color and Light

In the design of the optimum workplace, job performance, as it relates to employee satisfaction, is enhanced by colors that are stimulating, cheerful, and comforting. Because the work environment has a direct relationship to employee efficiency, colorless offices can be counterproductive. Off-white, buff and gray need to be balanced by additional colors to stimulate the user. Muted colors occurring in nature tend to produce comfortable office environments.

Specific areas of interior environments require special attention. Cool hues should be used in areas where a great deal of concentration is necessary. Similarly, calming colors should be used in high stress areas.

The colors of furnishings are also important because they contribute to the balanced contrast between black and white. Gray may be ideal for desk tops and work surfaces since it is a neutral color and not distracting. It creates a good balance in contrast with either black or white, and it helps maintain a comfortable and uniform brightness level.

Colors of walls, floors, ceilings and furnishings all play a vital role in influencing our perception of a space.

Color palettes and combinations affect different users of a space in different ways. It is up to the designer to develop a basic knowledge of the most common human responses to different colors and color combinations and then to determine those responses specific to the end-user.

The following is a list illustrating some of the most common human responses to different colors and color combinations.

- Reds are associated with tension and danger. They may add life and cheer to blends of blues and greens; but they generate unpleasant tensions when used with strong greens.

- Oranges share qualities of reds. They may be used to stimulate or modify otherwise neutral or cool color schemes.

- Yellows are the mildest of the warm colors and are often associated with cheerfulness.

Although these color responses are common, care must be taken when working outside of one's own cultural environment to ensure the intended interpretation.

- Greens are the cool colors closest to the warm on the color wheel. They are often perceived as peaceful.

- Blues are the coolest of the cool colors, suggesting rest, repose, calmness, and dignity. If overused they may be perceived as depressing and gloomy. Intense blue in small areas can be a helpful accent in warm and warm-neutral color schemes.

- Violets fall between cool and warm colors. They are often perceived as artistic, suggestive, and sensitive but may be perceived as ambiguous or too strong.

- Black is a powerful accent color. It is often associated with—and suggests—weight, dignity, formality, and solemnity.

- Neutral colors tend to convey, in milder form, impressions of the hues that they contain. Neutral grays make background colors easy to live with but are subject to dullness, and sometimes appear monotonous.

- Whites and near whites suggest clarity, openness, and brightness. Whites are generally safe colors and can be used in large areas to a highly satisfactory effect if offset with small areas of chromatic color. Too much white can produce glare.

The nature of emotional responses to the environment will depend heavily on the value and saturation level of the hues. Greens and blues, thought to be calming, become very effective when used in high-stress areas such as doctors' offices. More saturated colors, such as deep greens and purples, are often used as accents to give a feeling of status and dignity, for example in executive offices or reception areas.

Color is one of the first elements that people respond to when presented with a design concept. Each individual will respond uniquely to a color presented them based upon upbringing, education and socio-economic background. As a designer, it is important to determine the impact of color within the essence of the space.

Color and light are effective means by which space may be articulated or defined. The surface treatment of walls, floors, and ceilings articulates the spatial boundaries of a room. Color, texture, light, and pattern affect our perception of relative positions in space and, therefore, our awareness of a room's dimension, scale and proportion. Spaces may be made to appear larger than they are by unifying them with color and light that blend surfaces rather than fragment them.

The effect of color and light on the perception of space (the apparent, versus the actual, size and distance of objects from a viewer) will vary among individuals; however, the following are some general guidelines of how color and light may be used in the design of a space.

- Light, cool spaces are generally perceived as expansive; dark, warm spaces as diminishing.

- A strong, warm color on an end wall will shorten the apparent length of a room by drawing that wall forward. Cooler colors will cause the plane to recede, thereby expanding our perception of the room.

- Dark ceilings will lower the apparent height of a room. Light ceilings will raise the apparent height of a room. However, a combination of a dark floor and ceiling can greatly reduce the apparent height and may seem oppressive.

- Strong-valued ceilings and floors may help to unify a space.

- A brightly colored wall will appear larger than it actually is.

Color in combination with light can redefine our perception of space.

In addition to aesthetics, two safety color codes are currently being used by professionals in the design field: those of the **Occupational Safety and Health Administration (OSHA)** and **American National Standards Institute (ANSI)**. Both share some of the same conventions, such as the use of the color red for indicating fire protection equipment. For detailed specifics regarding the application of either system, the designer should refer directly to an OSHA or ANSI guidebook.

Developing a Color Scheme

The development of a color scheme involves four phases: analysis, schematic design, design development, and documentation. Each of these phases can be broken down into various steps for the designer to follow.

During the **analysis phase** the designer examines the factors which will impact the color choices in a space.

- Proposed use of the space.
- Size of the space.
- Directional orientation of the space.
- Ages and types of people occupying the space.
- Time of day the space will be used and the activities to occur at those times.
- Existing color surrounding the space.

- User’s color preference.

During **schematic design**, the designer develops a color palette based on the results of the above analysis phase and the following procedures.

- Determine the technical color scheme.
- Determine actual colors and their tints and shades.
- Evaluate the scheme for appropriateness.
- Evaluate the colors and their compatibility.
- Evaluate the colors in relation to natural and artificial light.
- Modify the color selections if necessary.

During the **design development phase** the designer researches available products that complement the chosen color scheme.

- Investigate the market for wood, wallcoverings, furniture, fabrics, carpets, and other interior materials suitable for the space.
- Evaluate the findings from above and modify the color plan as necessary.

The **documentation phase** involves recording the findings and design decisions to ensure proper execution of the design. The design must accurately communicate color specifications to those who order materials through drawings and specifications.

During the course of a project, the designer will present the interior design to the using agency. The method of presentation should be clear and concise to avoid any misunderstanding. Such presentation may also include sample boards with all related finishes displayed and identified in an orderly manner. The presentation boards serve as an explanation of the color concept and the relations of new and existing items. The designer must be certain to re-state all criteria impacting the project and present solutions that satisfy the established criteria.

Color scheme development is, like all design, an iterative processes. It involves a cycle of analysis, solution, and evaluation. The starting point may be completely arbitrary, but the final solution must stand up to the criteria upon which it will be judged.